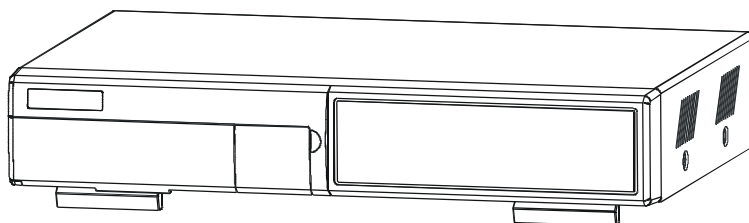# 4 CH Digital Video Recorder

User's Manual

Please read this instructions thoroughly before operation and keep the manual in a safe place for further reference.

WARNING

All the safety and operating instructions should be read before operation.
Improper operations may cause permanent damage.

```
┌─────────────────────────────────────────────────────┐
│   ⚡          ┌──────────────────────┐        !      │
│  /⚡\         │      WARNING         │      /!\      │
│ /___\        │ RISK OF ELECTRIC SHOCK│     /___\     │
│              │    DO NOT OPEN        │               │
│              └──────────────────────┘               │
├─────────────────────────────────────────────────────┤
│  WARNING : TO REDUCE THE RISK OF ELECTRIC SHOCK,     │
│  DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTUre.   │
│        NO USER-SERVICEABLE PARTS INSIDE.             │
│          REFER SERVICING TO QUALIFIED                │
│              SERVICE PERSONNEL.                      │
│  SOCKET-OUTLET SHALL BE INSTALLED NEAR THE EQUIPMENT AND │
│        SHALL BE EASILY ACCESSIBLE.                   │
└─────────────────────────────────────────────────────┘
```

· This adaptor is only for this machine.

    Do not use it for other electronic products or it will damage other products.

· Please lift and place this equipment gently.

· Do not expose this equipment to direct sunlight.

· Do not use this equipment near water or in contact with water.

· Do not spill liquid of any kind on the equipment.

· Please power down the unit before unplugging.

· Do not block the ventilation holes at the top and bottom of the unit.

· Do not switch the Power On & Off within short period of time

    (within 3 seconds).

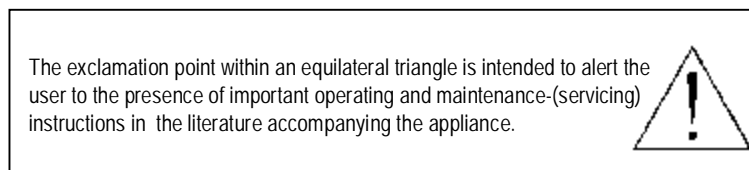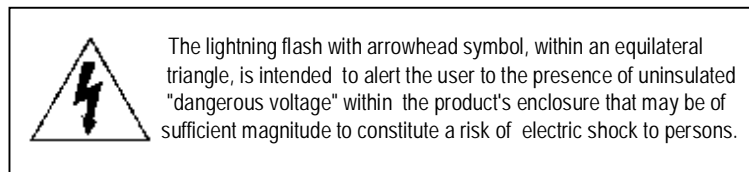· Installation should be made by qualified service personnel.

```
┌─────────────────────────────────────────────────────┐
│   /⚡\      The lightning flash with arrowhead symbol, within an equilateral │
│  /⚡ \     triangle, is intended to alert the user to the presence of uninsulated │
│ /____\     "dangerous voltage" within the product's enclosure that may be of │
│            sufficient magnitude to constitute a risk of electric shock to persons. │
└─────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────┐
│ The exclamation point within an equilateral triangle is intended to alert the │
│ user to the presence of important operating and maintenance-(servicing)    /!\ │
│ instructions in the literature accompanying the appliance.                /___\ │
└─────────────────────────────────────────────────────┘
```

# TABLE OF CONTENTS

FEATURES ▰▰▰ *What do you get ?*

<u>DVR Features</u>

• Remote control via internet

• Wavelet compression format replaces Time-Lapse VCR + Multiplexer / Quad

• 4 audio inputs / 2 audio outputs

• On Screen Display and Remote Control via PC

• Connect video web server via IE browser

• Auto sending message by e-mail or FTP when there have alarm.

• Auto recording when there have alarm.

• Picture-in-Picture (PIP) and Picture-on-Picture (POP) function in live, Linear Zoom (2x~4x)

• Motion detection & motion trigger recording function (16*12 detection point)

• Alarm input & output function(COM / NO / NC)

• Recording rate up to full size 30 fields/sec. or quad size 240 fields/sec.

• Multiple quick search by date/time/alarm/full/motion list

• Support IDE HDD capacity more than 400G.

• Security password protection

PACKAGE CONTENT ▰▰▰
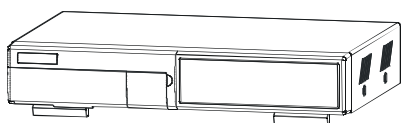
Digital Video Recorder(with HDD cartridge)

User's Manual

2 Keys

Accessories pack

Accessories pack

Power Adapter and Cord

CD-ROM

Warning:

1. Please check the package to make sure that you receive the complete accessories which includes the components shown above.

2. This adaptor is suited for DC19V 2A use. If it is damaged, users can find replacement adaptor easily in the locality with this specification.

INSTALLATION GUIDE ◣ *Before Operation*

1. Connect cameras and monitor to the DVR.

2. Shown below is an example of connecting the DVR to your existing Observation System.

3. Install HDD (The compatible HDD brands are listed in the following table.)

Please refer to page.45 Appendix #1 for installation instructions.

Note: The HDD must be installed before turning on the DVR. If HDD is not installed, the DVR would function as a 4 CH multiplexer.
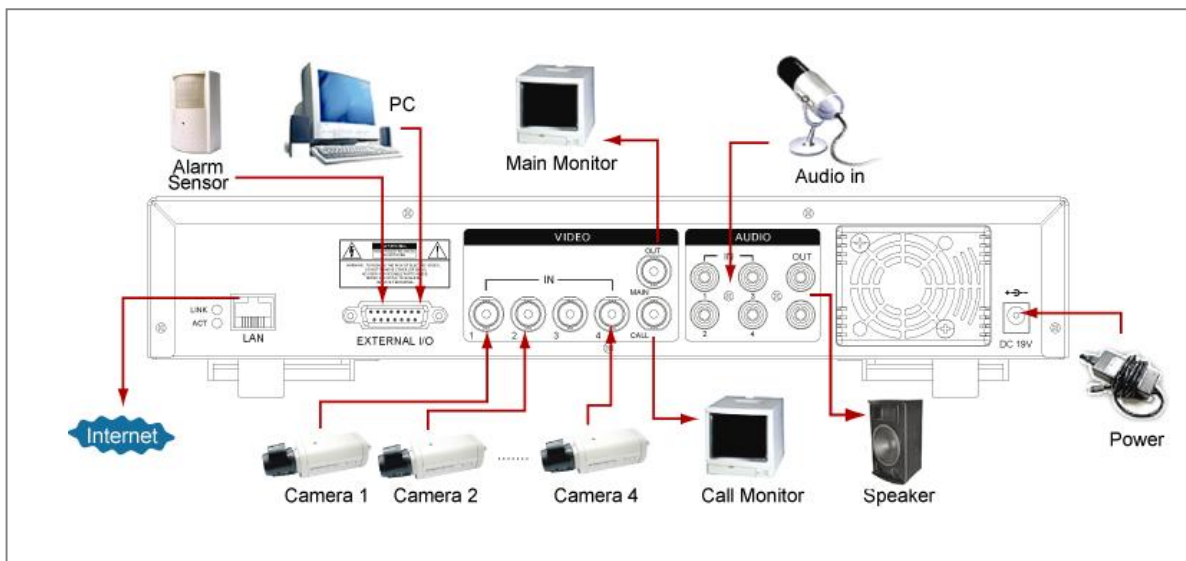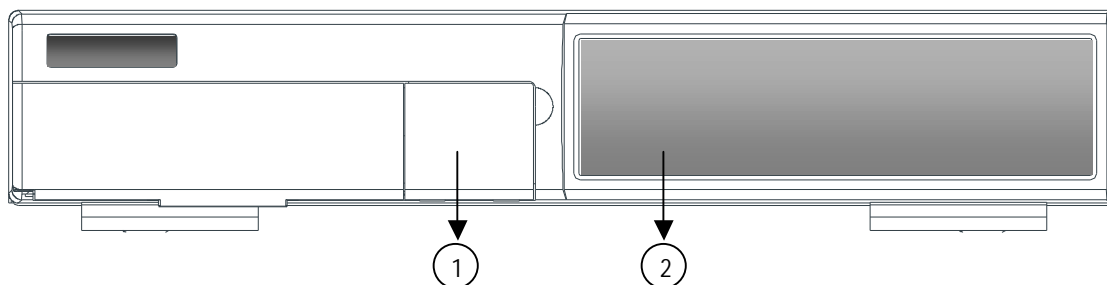

COMPATIBLE HARD DISK MODELS

Manufacturer	Model	Capacity	Rotation
HITACHI	Deskstar 180 GXP (120 GB)	120GB	7200 rpm
HITACHI	Deskstar 7K250, HDS722516VLAT20	160GB	7200 rpm
HITACHI	Deskstar 7K250, HDS722525VLAT80	250GB	7200 rpm
HITACHI	Deskstar 7K400, HDS724040KLAT80	400GB	7200 rpm
IBM	Deskstar 120GXP (80GB)	80GB	7200 rpm
IBM	Deskstar 120GXP (120GB)	120GB	7200 rpm
Maxtor	DiamondMax 536DX(60GB) 4W060H4	60GB	5400 rpm
Maxtor	DiamondMax Plus 9	80GB	7200 rpm
Maxtor	DiamondMax Plus 9, Model#6Y120L	120GB	7200 rpm
Maxtor	DiamondMax Plus 9, Model#6Y160L0	160GB	7200 rpm
Maxtor	MaxLine Plus Ⅱ, Model#7Y250P0	250GB	7200 rpm
Seagate	Barracuda ATA IV, ST380021A	80GB	7200 rpm
Seagate	Barracuda ATA V, ST3120023A	120GB	7200 rpm
Seagate	Barracuda 7200.7 Plus, ST3160023A	160GB	7200 rpm
Western Digital	Caviar WD1200BB-00CAA1	120GB	7200 rpm
Western Digital	Caviar WD2000BB-00DWA0	200GB	7200 rpm

NOTE: For non-stop long-time recording, we suggest having two HDD for recording to ensure good reliability of HDD.

FRONT PANEL

1. REMOVABLE HDD CARTRIDGE & KEYHOLE	Please refer to page.44 Appendix #2.
2. CONTROL PANEL	
LED LIGHT	The LED Light is ON under the following conditions. • HDD : HDD is reading or recording. • HDD Full : HDD is full • ALARM : To turn off the ALARM LED light, please refer to page.12 and set the ALARM mode as OFF. • TIMER : When Timer is Enabled • PLAY : Playing mode • REC : Recording mode
MENU	Press **MENU** button to enter main menu.
ENTER	Press **ENTER** button for confirmation.
SEARCH	Press **SEARCH** button for searching recorded video.
ZOOM	Press **ZOOM** button to enlarge the picture display.
▣ / + PICTURE IN PICTURE	PIP: Press " ▣ " button for Picture in Picture screen. + : Press "+" button can change the setting in the menu.
⊞ / - 4 CHANNELS DISPLAY MODE	Press ' ⊞ ' button for 4 CH display modes and press twice to enter POP (Picture On Picture) function. - : Press " - " button can change the setting in the menu.
SLOW	To slow down the speed of playing mode.
POWER	Press Power to turn ON / OFF the DVR.

FF / ►	• FF : Play video fast forward. (Press FF button again to adjust speed as 1, 2, 4, 8, 16, 32 times) • ► : Under setup mode, it works as Right button.
REW / ◄	• REW : Play video fast backward. (Press REW button again to adjust speed as 1, 2, 4, 8, 16, 32 times) • ◄ : Under setup mode, it works as Left button.
STOP / ▼	• STOP : Under DVR Recording / Playing mode, it can stop the action. • ▼ : Under setup mode, it works as Down button.
PAUSE / ▲	• Pause : Under DVR playing mode, it can make the action pause. • ▲ : Under setup mode, it works as Up button.
PLAY	Press "**PLAY"** button to playback recorded video.
REC	Press "**REC**" to start recording.
CAMERA SELECT (1-4)	Press the Camera Select (1-4) to select the camera.

REAR PANEL
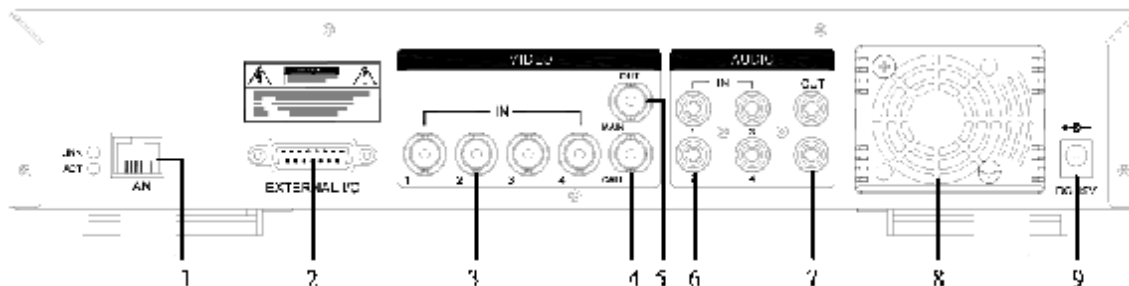
1. LAN
Connect DVR by LAN cable.

2. EXTERNAL I/O
· Controlled remotely by an external device or control system such as Video Web Server or PC.
· Alarm input, external I / O expansion.

3. VIDEO INPUT (1-4)
Connect to video source, such as camera.

4. CALL
Connect to CALL monitor. Show the Switch Display.
When the alarm is triggered, the call monitor will show the triggered channel for a period of time.

5. MAIN
Connect to Main monitor.

6. AUDIO IN (1-4)
Connect to audio sources, such as a microphone.
• IPS should be set to 30 (for NTSC) or 25 (for PAL)
* 4 audio inputs, but can only record one input at the same time.

7. AUDIO OUT
Connect to monitor or speaker.
• IPS should be set to 30 (for NTSC) or 25 (for PAL)
* with 2 mono audio outputs from the same source.

8. FAN
For ventilation, do not block the opening.

9. POWER
Please use the provided power cord.

Warning:

1. This adaptor is only for this machine. Do not use it for other electronic product or it will damage other products.

2. This adaptor is suited for DC19V 2A use If it is damaged, user can find replacement adaptor easily in the locality with this
   specification.

Before using the DVR, please have a HDD installed ready, or it will function as 4 CH multiplexer (refer to Appendix #1 and Appendix #2 for installation or removal of a HDD).

1. Connect the AC power cord and plug into an electrical outlet. The Red LED indicator light will be ON and the DVR is in standby mode.

2. Press the Power button. The POWER LED will turn from red to orange, and other red LED indicators will turn ON. It takes approximately 5 to 15 seconds to boot the system with the message : " HDD Detecting ". Once connected, the POWER LED will change to green color, and the Alarm LED will be ON.

3. Before operating the DVR, sets the system time first. (refer to page.9).

NOTE : 1.If the HDD is not installed correctly or not installed, the **"HDD not found"** message will appear for 3 seconds and then return to 4 CH Multiplexer display mode.

2.To switch the system, you need to turn off the power and pull out the AC power cord before reconnecting the power. And after pressing **"POWER"** + **"FF"** to NTSC system or **"POWER"** + **"REW"** to PAL system and reconnect the AC power cord, the system of the DVR will be switched.

OPERATION ▰▰▰▰▰▰▰▰▰▰

RECORDING

The DVR offers 4 recording modes, variety of recording modes. Refer to p.11 for advanced setting of recording speed and resolution. Under the recording status, if power is off accidentally, the recorded video will still be stored in the HDD. And the DVR will return to original recording setting after the power restores again.

On the screen, you will find the date, time, HDD recording type, the available space of HDD (in GB) left and the symbol " 🖒 " represents the recording mode.

NOTE : 1. Under O/W recording mode, previously recorded files will be automatically overwritten without further warning notices, when the HDD is full.

2. If the HDD capacity is only 5 GB left, it will display **"5 GB"** on the up-right screen and shows orange color, and it will buzz for seconds; so as in 4GB, 3GB, 2GB and 1GB. If the O/W Recording mode (NOTE 1) is on, it won't have the warning buzzer.
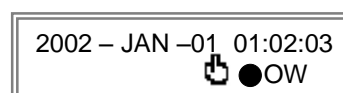
```
2002 – JAN –01  01:02:03
         🖒 ●OW
```
(OW : HDD Overwrite)

There are 4 recording modes: Alarm, Motion, Timer and Manual Recording.

1. ALARM RECORDING
DVR is triggered by an alarm input. ⬚ symbol will be shown on the triggered channel. (refer to page12)

2. MOTION TRIGGER RECORDING
Recording is triggered by motion detection. ⬚ symbol will be shown on the triggered channel. (refer to page13)

3. TIMER RECORDING
Recording is scheduled by a Timer. It will indicate by the symbol ⬚ . (refer to page9)

4. MANUAL RECORDING
Recording is initiated manually by pressing the REC button. Symbol 🖒 will be shown.

PLAY BACK

Press "PLAY" button, the DVR will show the last recording.

1. FAST FORWARD (F.F.) & FAST REWIND (F.R.)
You can increase the speed of Fast Forward and Rewind on the DVR.
In the Play mode, press " ► " once to get 2X speed forward and press twice to get 4X speed,… and the maximum speed can reach 32X.
Press "◄" once to get 1X speed rewind and press twice to get 2X speed, … and the maximum speed can reach 32X.

2. SLOW FORWARD (S.F.) & SLOW REWIND (S.R.)
You can also slow down the speed of Forward and Rewind on the DVR.
In the Play mode, press the SLOW button and you will enter Slow mode.
Press " SLOW " once to get 1/2X speed forward and press " ► " to get 1/4X speed,… and the slowest speed can reach 1/32X.
Press "◄" once to get 1/2X speed rewind and press twice to get 1/4X speed, … and the slowest speed can reach 1/32X.

3. PAUSE
You can make the playback pause and the image will be displayed on the screen.

4. STOP
Press " STOP " button under any circumstance, the DVR will return to live monitoring mode.

5. IMAGE JOG DIAL
It will allow you to manually view video frame-by-frame, one image at a time.
While in PLAY mode, press " PAUSE ", and the screen will pause.
Press " ► " button advances the frozen screen one image forward.
Press " ◄ " button moves back one image.
Note: During the LIVE or PLAY mode, press **"ENTER"** + **"SEARCH"** buttons at the same time to switch the **"NORMAL"** and **"SHARPNESS"** display.

6. SHARPNESS
When in play mode, press "ENTER + SEARCH" to switch the sharpness(normal or sharpness)

CAMERA SELECT (1-4)

Press Camera Select (1-4) to select the camera to display in full screen.

MAIN MENU ▰▰▰ *Detailed Menu Setup*

There are 12 options available in the Main Menu:

TIMER ---------- Program Timer Recording
CAMERA ------- Camera Setup
RECORD ------- Recording Mode Setup
ALARM --------- Alarm Setup
DWELL --------- Dwell time Setup
PIP --------------- Picture in Picture Setup
MOTION -------- Motion Detection Setup
DISPLAY ------- Display Mode Setup
NETWORK -----Network Setup
USER ---------- User Password Setup
SYSTEM ------- System Setup
EVENT --------- Event List

```
       (MENU)
 TIMER
 CAMERA
 RECORD
 ALARM
 DWELL
 PIP
 MOTION
 DISPLAY
 NETWORK
 USER
 SYSTEM
 EVENT
```

Outlined below are the buttons used for Menu setting :

- "▲" and "▼" : Scroll up and down within a menu option.
- "◄" and "►" : Scroll sideways within a menu option that has been selected.
- " + " and " - " : Increase and decrease the number or change values when an option is selected and is blinking.
- ENTER : Select a submenu / an option under a submenu for browsing / modification.
- MENU : Complete modification of a menu option; exit a menu.

MENU OPTIONS ▰▰▰

SYSTEM

1. AUDIO INPUT

To choose one of 4 channels to record. (It can only record 1 input at the same time)

2. BUZZER
Set the BUZZER "ON", it will buzzer by event occurrence when the setting is ON.

3. EXT ALARM
To set the EXT ALARM. It will be trigged by event occurrence when the setting is ON.

4. VLOSS ALARM

To set the VLOSS ALARM. When the setting is "ON", the alarm will start by the setting of Buzzer, EXT alarm or Alarm Duration.

5. MOTION ALARM
To set the MOTION ALARM. When the setting is "ON", the alarm will start by the setting of Buzzer, EXT alarm or Alarm Duration.

6. KEY MUTE

To set the KEY MUTE. When the setting is "YES", there will be no sound when you press any key.

7. HDD OVERWRITE
To set the HDD OVERWRITE. When the HDD is full under O/W recording mode, previously recorded files will be overwritten without further warning notices if the HDD OVERWRITE is ON.

```
       (MENU)
 TIMER
 CAMERA
 RECORD
 ALARM
 DWELL
 PIP
 MOTION
 DISPLAY
 NETWORK
 USER
 SYSTEM
 EVENT
```

8. MESSAGE LATCH

To select whether the DVR messages will disappear after 10 seconds or remain on screen. NO is the default setting which the messages will disappear after 10 sec.

NOTE : Video loss, Alarm and Motion messages will be shown like the Alarm Duration time.

9. DATE DISPLAY

To set the date Y/M/D, M/D/Y, D/M/Y or OFF on the monitor.

10. DATE

To set the date on the DVR.

11. TIME

To set the time on the DVR.

(SYSTEM)	
AUDIO INPUT	1
BUZZER	ON
EXT ALARM	ON
VLOSS ALARM	ON
MOTION ALARM	ON
KEY MUTE	YES
HDD OVERWRITE	YES
MESSAGE LATCH	YES
DATE DISPLAY	D/M/Y
DATE	26-DEC-2003 [FRI]
TIME	22:55:34
CLEAR HDD	YES
SYSTEM RESET	YES

12. CLEAR HDD

Delete all the contents of the HDD. When you choose "YES" on this option, press "ENTER" and you

will be prompted with the question shown: Press "→" to clear HDD or press "←" to cancel.

13. SYSTEM RESET

Reset all system settings back to factory default settings. Select "YES" and press "ENTER" button.

TIMER

1. DAY

Select the day, or days of the week (Mon–Fri / Sat-Sun / Daily) that you wish to schedule

the DVR to automatically record.

NOTE :

1. Date could be changed by "**+**" and "**-**" buttons.

2. If you have selected the date and Timer recording set from that specific day
   to a new day, then the Timer Recording Schedule will be set as whole week.
   For specific date of Timer Recording Schedule, it is not recommended to set Ending
   Time over 23:59. For example: If you set Timer Schedule Day as Sunday, and
   START from 11:30, but End on 00:20, then Recording Timer Schedule is set as from
   every Sunday's 11:30 to next Sunday's 00:20. If you only want to set Recording
   Timer Schedule from every Sunday 11:30 to Monday 00:20, then you should set
   Recording Timer Schedule as Sunday from 11:30 to 23:59, and Monday from 00:00
   to 00:20.

3. It is not suggested that users press "STOP" button or restart the system during setting
   time. In doing so, the recording will stop, and users can resume recording by pressing
   "ENTER" + "MENU".

2. START

Set the time to start the recording.

3. END

Set the time to end the recording.

4. IPS (IMAGE PER SECOND)

NTSC—30、15、8、4、2、1
PAL—25、12、6、3、2、1

5. QUALITY

Select the quality of recording image: BEST, HIGH, NORM and BASIC.

6. MODE

There are three recording mode settings :
QUAD-FRAME, QUAD-FIELD, MULTIPLEX.
NOTE: To select the appropriate recording mode before
you start recording. We don't suggest users to change
the different recording mode during recording
to ensure the best recording quality.

7. TIMER ENABLE

When TIMER ENABLE is "YES", press "menu" button, and you
can see the timer diagram according to your setting.

	(TIMER)				
DAY	START	END	IPS	QLT	MODE
DAILY	01:00	22:00	30	BEST	Q-FR
OFF	00:00	00:00	30	BEST	Q-FI
OFF	00:00	00:00	30	BEST	Q-FI
OFF	00:00	00:00	30	BEST	Q-FR
OFF	00:00	00:00	30	BEST	Q-FR
OFF	00:00	00:00	30	BEST	Q-FR
OFF	00:00	00:00	30	BEST	MUX
OFF	00:00	00:00	30	BEST	Q-FI
TIMER ENABLE : YES					

```
1ST  00--05  06--11  12--17  18--23
MON  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
TUE  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
WED  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
THU  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
FRI  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
SAT  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
SUN  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨

2ND  00--05  06--11  12--17  18--23
MON  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
TUE  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
WED  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
THU  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
FRI  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
SAT  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
SUN  ▨▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▯▯▯  ▯▯▯▨▨▨
```

CAMERA

1. TITLE

Assign a title to each camera. Initially each title is the camera's number.

2. ALARM

Select LOW / OFF / HIGH for alarm polarity. The default value is LOW.

		(CAMERA)				
TITLE	ALARM	REC	BR	CT	CL	HUE
CAMERA01	LOW	ON	18	15	15	18
CAMERA02	OFF	OFF	18	15	15	18
CAMERA03	HIGH	OFF	18	15	15	18
CAMERA04	HIGH	ON	18	15	15	18

3. REC (RECORD)

Set up which channel you want to record.

ON : when alarm input is triggered, DVR will record alarming channel more frequently.

For example : when CH01 is triggered, the record method will become 1-2-1-3-1-4….

OFF : DVR will not record.

4. BR (BRIGHTNESS)

Adjust the brightness of each channel. The level is from 0 to 63.

5. CT (CONTRAST)

Adjust the contrast of each channel. The level is from 0 to 63.

6. CL (COLOR)

Adjust the color of each channel. The level is from 0 to 63.

7. HUE (HUE)

Adjust the hue of each channel. The level is from 0 to 63.

RECORD

1. RECORD IPS

Select the recording speed. The options are
as following :

NTSC－30、15、8、4、2、1

PAL－25、12、6、3、2、1

```
            (RECORD)
RECORD IPS              30
QUALITY            NORMAL
RECORD MODE    QUAD-FRAME
```

2. QUALITY

There are four quality settings : BASIC, BEST, HIGH, NORMAL.

NOTE : Please refer to page.49 APPENDIX #4 recording speed for the relationship of recording time, IPS
and recording quality.

3. RECORD MODE

There are three recording settings : QUAD-FRAME, QUAD-FIELD, MULTIPLEX.

NOTE: To select the appropriate recording mode before
you start recording. We don't suggest to change
the different recording mode during the recording
to ensure the best recording quality.

ALARM

1. ALARM ENABLE

Alarm will be triggered by event occurrence when the setting is YES.

2. ALARM DURATION

Set the reaction time which was determined by how long the alarm mode responded to a buzzer. Default setting is 10 sec. Options are 10 Sec, 15 Sec, 20 Sec, 30 Sec, 1 MIN, 2 MIN, 3 MIN, 5 MIN, 10 MIN, 15 MIN, 30 MIN, ALWAYS, AUTO.

NOTE : 1. Video loss, Alarm and Motion messages is shown like the Alarm Duration time is.
2. When the setting is AUTO, the alarm duration time is based on the setting of the external alarm device.
3. During ALARM DURATION'S setting time, users can restart ALARM/MOTION function by pressing both "ENTER" + "STOP" buttons.

3. REC IPS

Select the images per second of recording during an ALARM.
The options are as following:
NTSC-30、15、8、4、2、1
PAL-25、12、6、3、2、1

```
          (ALARM)
 ALARM ENABLE           YES
 ALARM DURATION      15 MIN
 RECORD IPS              30
 QUALITY             NORMAL
 RECORD MODE    QUAD-FRAME
```

4. QUALITY

There are four quality settings during an alarm.
ALARM : BASIC, BEST, HIGH, NORMAL.

5. RECORD MODE

There are three recording settings : QUAD-FRAME, QUAD-FIELD, MULTIPLEX.

DWELL

```
          (DWELL)
         NORM  ALARM
 CAM1    01      01
 CAM2    01      01
 CAM3    01      01
 CAM4    01      01
```

1. NORM

To set up the DWELL time period that each channel auto sequentially shows on call monitor. The level is from 1 to 15 Sec or OFF.

2. ALARM

To set up the DWELL time period when alarm input is triggered.
The level is from 1 to 15 Sec or OFF.

PIP

```
           (PIP)
 FULL SCREEN       CAM 1
 PIP SCREEN        CAM 2
 POSITION            D/R
```

1. FULL SCREEN

To set up the full screen background picture display.

2. PIP SCREEN

To set up the picture with a 1/9 size screen "insert".

3. POSITION

There are six position settings : D/L, D/M, D/R, U/L, U/M, U/R.

MOTION

```
                (MOTION)
            SEN   MD-NUM   RE   DET
CAM1   70     03      64   ON    AREA
CAM2   70     03      64   OFF   AREA
CAM3   70     03      64   ON    AREA
CAM4   70     03      64   ON    AREA

       MOTION RECORD : ON
       DAY     START      END
       DAILY   00 : 00    00 : 00
```

1. SEN (SENSITIVITY)
Sets the sensitivity of the pixel-based Motion Detection feature from 1 to 99.
The highest sensitivity setting is 01, the lowest sensitivity setting is 99.
The default setting is 70.

2. MD-NUM (MOTION DETECTION NUMBER)
Sets the number of targets of the motion detection to occur in order to trigger an Alarm
(from 1-99 target areas).
Note: MD-NUM cannot be less than the number of targets set in the AREA.

3. RE (REFERENCE)

Set the Reference image to which the current screen is compared (from 1-99).

For example, the value 64 would compare the current image to the 64th previous

screen image. The higher value may increase the sensitivity.

4. DET (DETECTION)

The motion detection on each channel can be turned to be

ON or OFF individually.

5. AREA

Press the ENTER button on this option to set the Pixel-based
Motion Detection Area for each channel. Red targets represent
where the target is (Figure 1-1). Green targets represent the
Motion Detection Area(Figure 1-2), and Purple targets represent
motion currently taking place (Figure 1-3). After stopping the detection,
the color of target will be green (Figure 1- 4).

To modify the Motion Detection Area, use the following controls:
ZOOM: turn the selected target ON/OFF.
▲▼◄► : navigates between targets
 - : turns all targets on the screen ON/OFF
 + : turn all targets in the selected row ON/OFF
Note: When the "DET" (DETECTION) setting is "ON", you must set the motion detection
      area or it won't be triggered.

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Figure 1-1

MOTION DETECTION SETUP

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5						■										
6																
7																
8																
9																
11																
12																

Figure 1-2

MOTION DETECTION SETTING — ROW SETUP

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2					■	■	■									
3					■	■										
4					■											
5	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6																
7																
8																
9																
11																
12																

Figure 1-3

MOTION DETECTION TRIGGERED-TURN INTO PURPLE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2						■	■	■								
3						■	■									
4						■	■									
5	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6																
7																
8																
9																
11																
12																

Figure 1-4

BACK TO MOTION DETECTION SETTING

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2						■	■	■								
3						■	■									
4						■										
5	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6																
7																
8																
9																
11																
12																

6. MOTION RECORD

When the DET setting is "ON", you can set up the MOTION RECORD function,

1. Select "ON" to set up the motion trigger recording: It can automatically switch to Record Mode. The motion detection will change the scanning sequence and show 🗗 on the monitor.

NOTE: The triggered recording time is based on ALARM DURATION mode setting (Please refer to page.12 for ALARM DURATION) and it will record from the last triggered time. For example, when the alarm duration setting is 1 min, the recording time is from 9:00:00 to 9:01:00. If the motion detection is trigged again at 9:00:40, the trigged recording time will be from 9:00:00 to 9:00:40 and 9:00:40 to 9:01:40. The total recording time is 00:01:40.

For example : If the motion is detected on Camera #1, its recording & scanning sequence will be more frequently. The sequence will be as 1st, 2nd, 1st, 3rd, 1st, … 4th. And channel 1 will show 🗗 on the screen. If the motion detection of 2nd camera and 3rd camera are both activated, they will be scanning as 2nd, 3rd, 1st, 2nd, 3rd, 4th, 2nd, 3rd, 1st, 2nd, 3rd, 4th … and vice versa. And CH2 & CH3 will show 🗗 for a period of time which is just like the Alarm Duration time.

2. Select "OFF": The screen still shows 🗗 and if it is in recording mode, the motion detection will change the scanning sequence.

7. DAY / START / END

To setup the DAY and the START/ END time for motion trigger recording timer setting.

DISPLAY

1. TITLE DISPLAY

To set the title shown on monitor or not.

```
        (DISPLAY)
TITLE DISPLAY        YES
OSD COLOR         YELLOW
LOSS SCREEN        GREEN
TIME POSITION     NORMAL
```

2. OSD COLOR

Select the OSD (On Screen Display) color. The options are
YELLOW, GREEN, CYAN, BLUE, PINK, GRAY, WHITE, RED.

3. LOSS SCREEN

Retain the last picture or select the LOSS SCREEN color.

The options are GREEN, BLACK, BLUE and RETAIN.

4. TIME POSITION

To set the OSD POSITION shown on monitor.

The options are NORMAL or CENTER.

NETWORK

1. SERVER IP
To set the the IP address

2. GATEWAY

To set the gateway

3. NET MASK

To set the net mask

4. DNS

To set the DNS

5. WEB PORT

To set the web port

6.RESET DEFAULT

Go back to default setting YES/NO

```
               (NETWORK)
SERVER IP             061.062.147.111
GATEWAY              061.062.147.254
NET MASK             255.255.255.000
DNS                  168.095.001.001
WEB PORT             00080
RESET DEFAULT            NO
```

USER

1. USER

To set up the user account for controlling. It allows 8 users setting.

Supervisor – Control all the functions.
Other Users – View all functions except the menu setting and event list cleaning.

2. PASSWORD

To set the security password for each account. The maximum length of user's password is 4 characters.

NOTE: To switch to different USER, press **"ENTER"** + **"MENU"** buttons to **"KEY LOCK"** and then enter the different user's password to UNLOCK.

```
┌─────────────────────────────┐
│          (USER)             │
│                             │
│               PASSWORD      │
│  SUPERVISOR      0000       │
│     USER 1       0000       │
│     USER 2       0000       │
│     USER 3       0000       │
│     USER 4       0000       │
│     USER 5       0000       │
│     USER 6       0000       │
│     USER 7       0000       │
└─────────────────────────────┘
```

EVENT

A single page can display 16 recorded events. Press "◄" or "►" to change the pages or press "▲" + "▼" to CLEAR the EVENT record.

DISK FULL: HDD is full

PWR REST : Power restored

M-HD REMS: HDD remove

M-HD REPL: HDD replace

M-HD ERR : HDD error

M-HD WARM: HDD warming

K UNLOCKS: Key unlock

DMA ERROR: DMA error

C1 VLOSS : The video of Channel 1 is lost

C2 ALARM : Channel 2 has been triggered by external I/O alarm

C3 MOTION: Channel 3 has been triggered by motion detection

SYSTEM ERROR: System might fail

POWER RESTORE : Power restored

```
┌──────────────────────────────────────┐
│ C1 VLOSS     26-DEC-2002  03:00:00    │
│ C2 ALARM     26-DEC-2002 03:00:00     │
│ K UNLOCKS    26-DEC-2002 03:00:00     │
│ M-HD ERR     26-DEC-2002 03:00:00     │
│ M-HD WARM    26-DEC-2002 03:00:00     │
│ PWR REST     26-DEC-2002 03:00:00     │
│ DMA ERROR    26-DEC-2002  03:00:00    │
│ M-HD REPL    26-DEC-2002  03:00:00    │
│         ↑ + ↓ : CLEAR                 │
└──────────────────────────────────────┘
```

Network Setting Guide

STATIC IP SETTING

STEP1: Software installation

1.Put the attached CD into a CD-ROM and it will start to install the application program into PC.
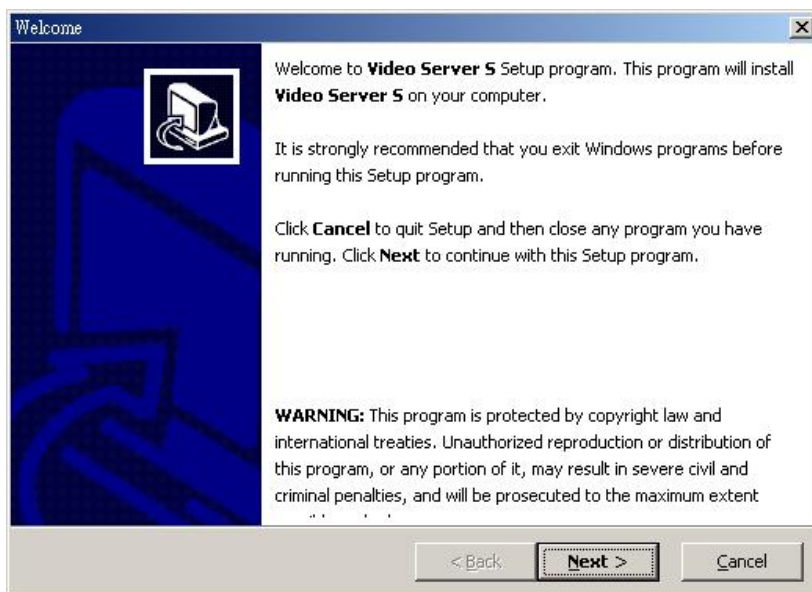
2. Press "Next".

3.Choose destination location and press "Next".
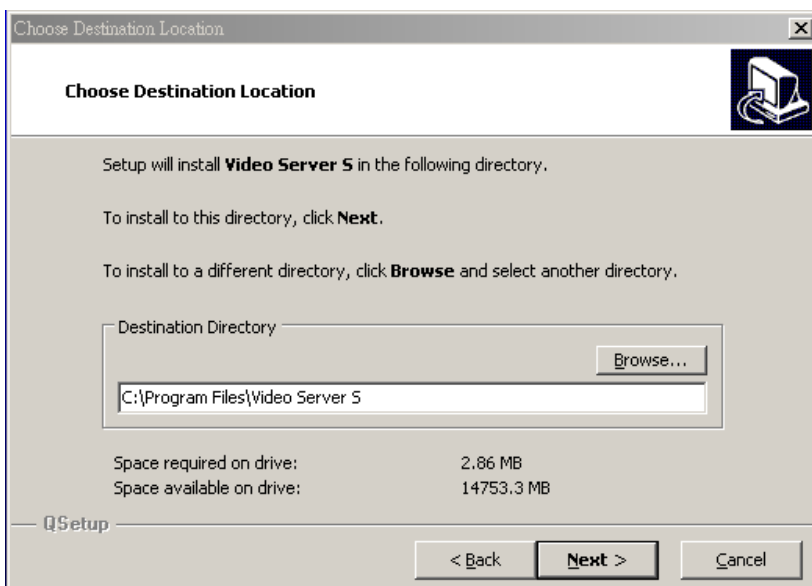
4.Set program shortcuts setting and press "Next".
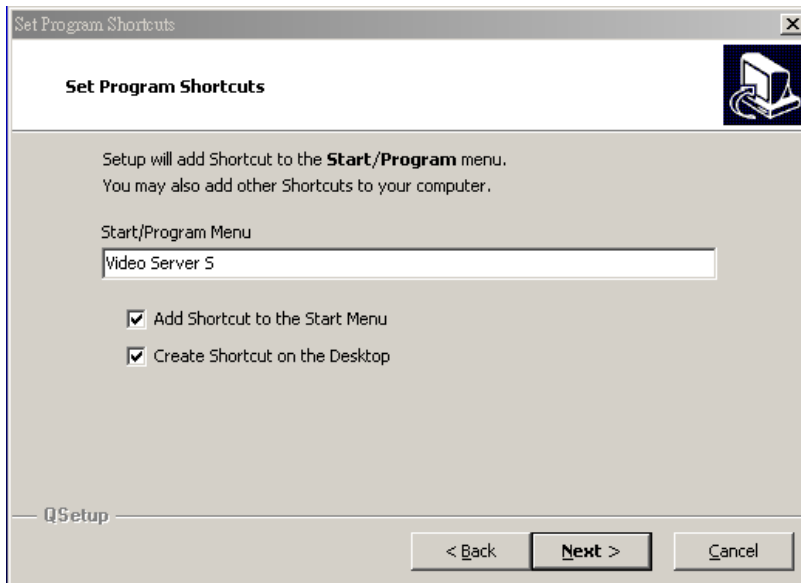
5.Press "Next" to begin to copy files
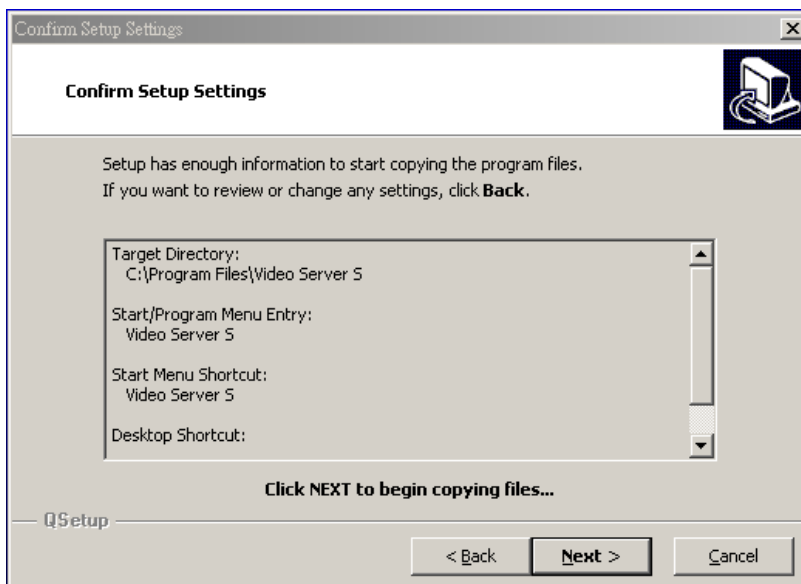
6.After the installation, there are 6 files and 1 folder in your assigned path (file folder) as below.

BMP   CtrlFile   IJL15.DLL   UnInstall_2...   UnInstall_2...   Video Server S   VideoServer...

Step2 : Static IP setting

In DVR MENU / NETWORK set SERVER IP, GATEWAY, NET MASK, DNS and WEB PORT which are provided from your local ISP (internet service provider).

```
       (MENU)
    TIMER
    CAMERA
    RECORD
    ALARM
    DWELL
    PIP
    MOTION
    DISPLAY
    NETWORK
    USER
    SYSTEM
    EVENT
```
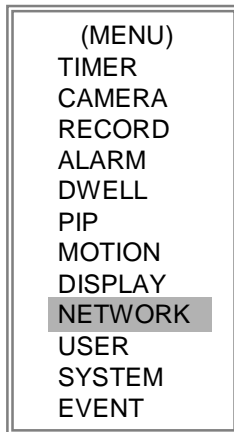
For example

```
            (NETWORK)
    SERVER IP          061.066.138.074
    GATEWAY            061.066.138.073
    NET MASK           255.255.255.000
    DNS                168.095.001.001
    WEB PORT             00080
    RESET DEFAULT         NO
```

After all network settings are finished, please connect DVR and static IP.

Static IP
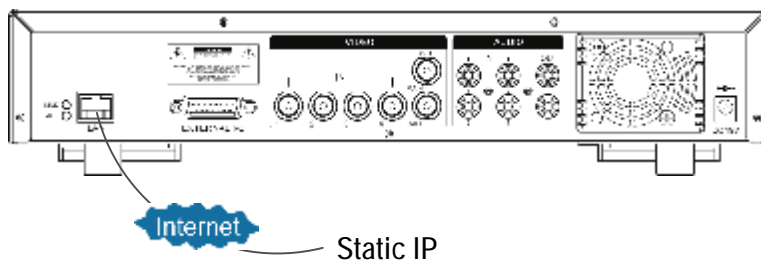
Step3 : Connect PC and DVR via internet

Click [icon] twice and enter your User name, Password (Note : If you never change the "Account" before, the User Name and Password are both "admin") and Server IP which you have set to DVR in step 2. Then click OK to connect.

VIDEO WEB SERVER

UserName	:	admin
Password	:	*****
Server_IP	:	61.66.138.74
Web Port	:	80 Adress Book

OK   SEARCH   CANCEL

DYNAMIC IP SETTING

Step1 : Software installation

1.Put the attached CD into a CD-ROM and it will start to install the application program into PC.

2. Press "Next".

3.Choose destination location and press "Next".
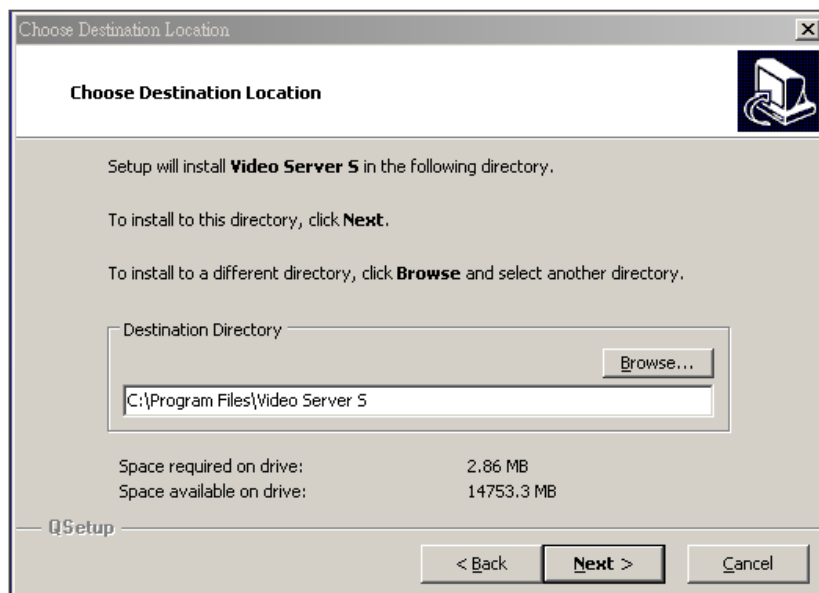
4.Set program shortcuts setting and press **"Next"**.
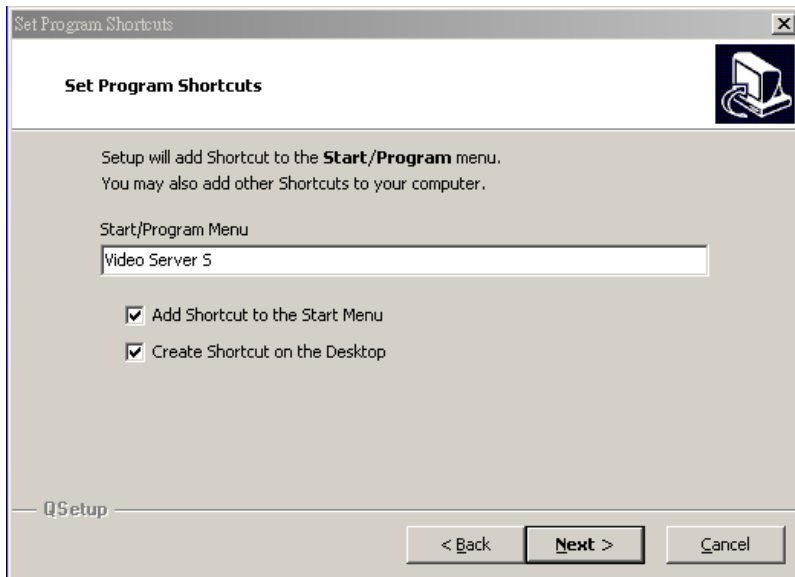
5.Press **"Next"** to begin copying files
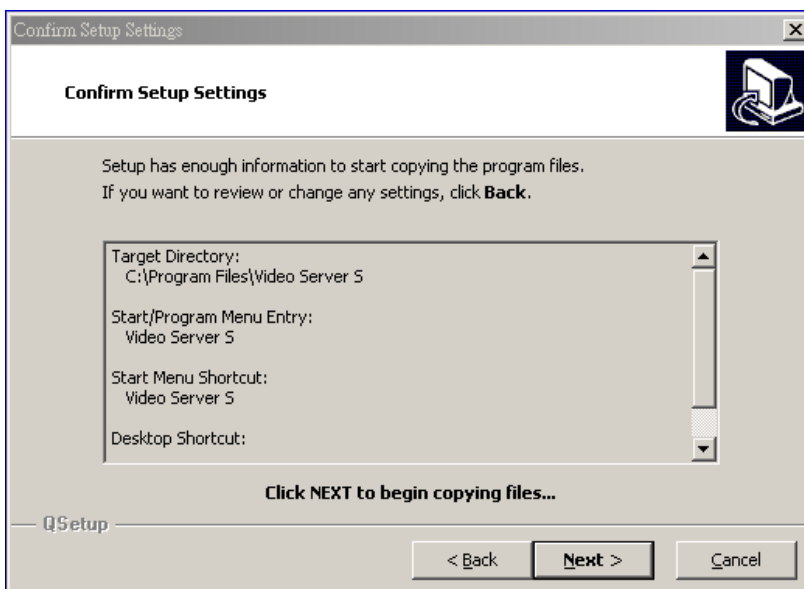
6.After the installation, there are 6 files and 1 folder in your assigned path (file folder) as below.

Step2 : DDNS apply

1. Click on free site **"http://www.dyndns.org"** (please look at the example below, you can also apply DDNS in other DDNS web page) and **"ACCOUNT"**

2. Press **"Create Account"**
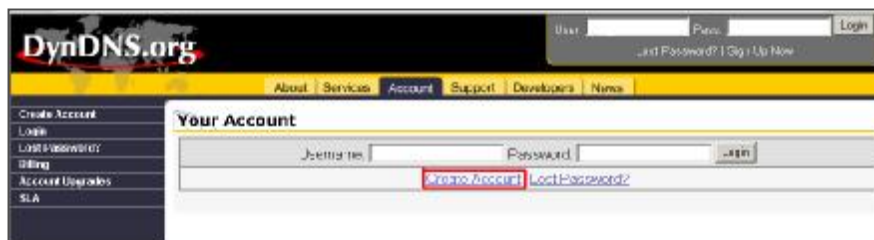
3. Register the information and click on **"Create Account"**

4.After registering your account, you will receive an e-mail, which contains instructions to activate your account. If you do not follow these directions within 48 hours, you will need to re-register your account.

5.Login your account.

6.Click on"Account" and "Add Host"

7 Users can set up their own DDNS HOST. For example, the user's applied Host name
is "avtech.dyndns.org". And then press "Add Host" to finish the setting.
(NOTE : Some routers don't support some DDNS HOST)

Step3：Login router

NOTE : The following settings are different from router to router. Please read the

instruction of your router thoroughly.

1.Connect PC and router (LAN end)

LAN end

POWER
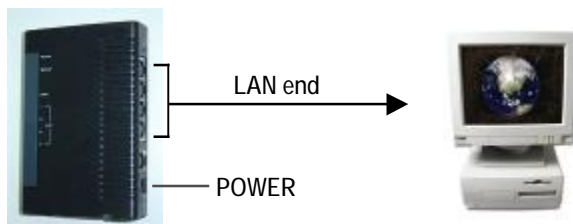
2. Network setting for PC. (The instruction is based on Win XP O/S. If your O/S is
    Win 2000 or Win 2003, the setup procedure is similar to that of Win XP O/S.)

Click Local Area Connection
Enabled
Realtek RTL8139 Family twice
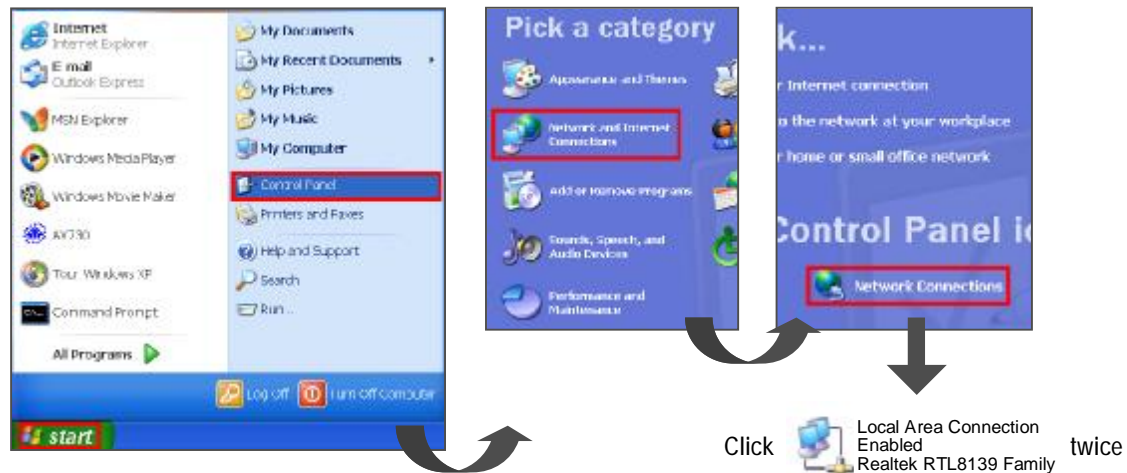
3.Click "Properties" for TCP/IP setup

4.Click on "INTERNET PROTOCAL (TCP/IP)" and then select "Properties" to setup
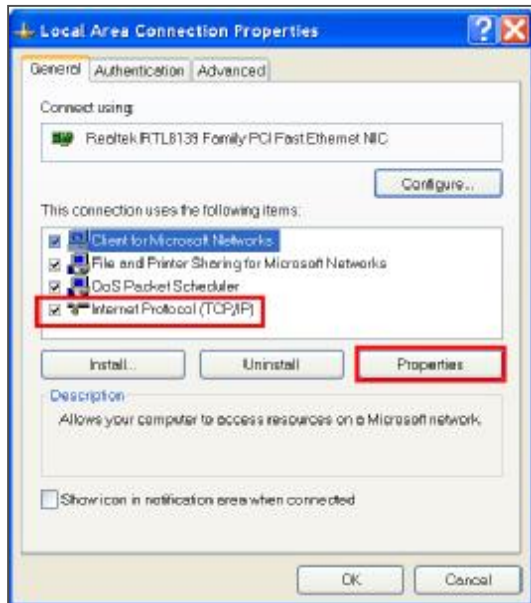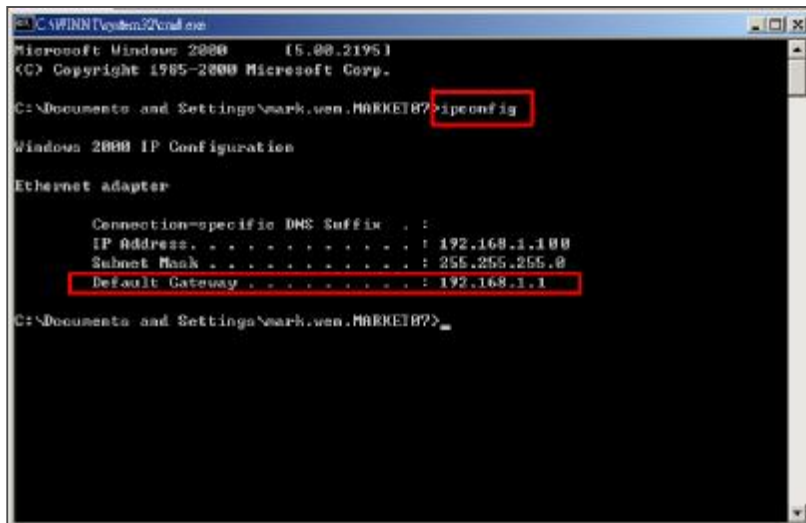
5.Choose "Obtain an IP address automatically"
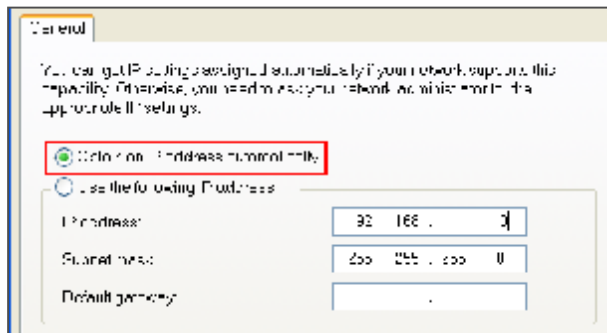
6. Enter "Command Prompt"

7. In the setting window, enter " ipconfig" to write down router's gateway(e.q. 192.168.1.1)

8. Close the window in the above step. Enter the IP address (router's gateway : 192.168.1.1) to log in to the router from internet explore. And then enter the login web page and key in the router's user name and password.

Step4 : Router setting

NOTE : In the router setting, we have four steps as follows.

1. Dial setting

2. DHCP setting

3. Virtual server setting

4. DDNS setting

1.Press **"INTERNER PORT"** and choose your WAN type (e.q. PPPoE), and then enter
your "User Name" and "Password" of dialing up to dynamic IP. Press save after
you finish the set up.

2. Press **"LOCAL PORT"** and set **"Start IP address"** and **"Number of IP address"**.
(For example, if the IP address of DVR is 192.168.1.10,then 10 is excluded from the setting range) Press
save after you finish setting up.

3. In **"ADVANCED SETUP / Virtual Server"**. Choose **"By Port"** and set **"Port Number"** to 80
   for DVR. And set **"Local Server IP Address"** to 192.168.1.10. Press add after you finish the set up.

4. In **"ADVANCED SETUP / Dynamic DNS"**. Key in the **"DNS Account"**, **"User Name"** and
   "Password" that you applied in step 3. Press save after you finish the set up.

Step 5 : IP setting

In DVR MENU / NETWORK set SERVER IP, GATEWAY, NET MASK, DNS and WEB PORT.

```
        (MENU)
      TIMER
      CAMERA
      RECORD
      ALARM
      DWELL
      PIP
      MOTION
      DISPLAY
      NETWORK
      USER
      SYSTEM
      EVENT
```
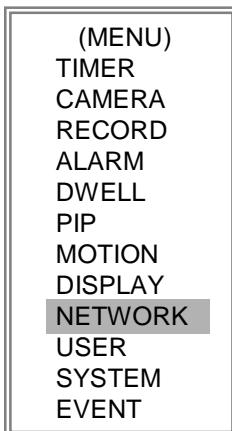
For example

```
              (NETWORK)
    SERVER IP          192.168.001.010
    GATEWAY            192.168.001.001
    NET MASK           255.255.255.000
    DNS                168.095.001.001
    WEB PORT             00080
    RESET DEFAULT         NO
```
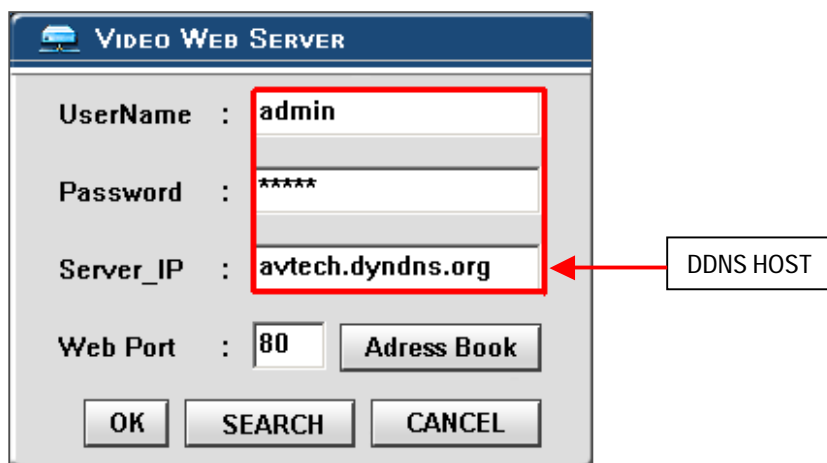
Step6 : Connect router

ADSL modem
(WAN end)

Step7 : Connect to DVR via internet

1. Change PC network setting to the original setting and link PC to the internet.

2. Click [icon] twice and enter your User name, Password and host (Note : If you never change the **"Account"** before, the User Name and Password are both **"admin"**). Then click OK to connect.)

```
┌─────────────────────────────────────┐
│  🖥 VIDEO WEB SERVER                  │
│                                       │
│  UserName   :  │admin            │    │
│                                       │
│  Password   :  │*****            │    │
│                                       │
│  Server_IP  :  │avtech.dyndns.org│ ◄──── DDNS HOST
│                                       │
│  Web Port   :  │80 │  [Adress Book]  │
│                                       │
│     [OK]   [SEARCH]   [CANCEL]        │
└─────────────────────────────────────┘
```

Note of Dynamic IP setting

*In step 2.7 : Some routers don't support some DDNS HOST.

*In step 3.1 : Please use router's LAN end to connect PC.

*In step 3.8 : Please use IE browser to enter router's gateway.

*In step 4.1 : Please make sure that you have pressed save after you finish setting.

*In step 4.2 : Please make sure that you have pressed save after you finish setting.

*In step 4.3 : Please make sure that you have pressed add after you finish setting.

*In step 4.4 : Please make sure that you have pressed save after you finish setting.

*In step 6 : Please use router's LAN end to connect to DVR. Use WAN end to connect to ADSL modem.

*In step 7 : The Server IP is the DDNS HOST which you set in step 4.4.

SOFTWARE OPERATION AT CLIENT SITE

Follow the steps for connection at your client site (remote site). (e.g. If you set up the server at your office with one static ADSL, you can remotely proceed to watch the video anywhere with a networked computer.)

Step 1：Click twice to enter Login setup (please refer to "software installation")

Step 2：Key in "User Name" and " Password". (e.g. "User Name" and "Password" are "dan" and the IP address is 61.222.50.174). Click "OK" to establish the connection.

NOTE:
1.There are two ways to get the software, one is via the attached CD, and the other is via Video Web Server.(Refer to APPENDIX#3)

2.You can press "Address Book" button to add a new IP into this table or choose any logined IP address to access the Video Server.

3.This function is designed to store the list of IP addresses which you can control and manage.

Step 3：If you could see the video screen as following, you have been successfully connecting to the server.

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Introduction of Basic Operation

A. Video Web Server control panel

B. Digital device control panel

1.Camera video inputs

2.PIP, POP, QUAD screen

3.Zoom, Select, Lock, Search, Enter

4.Stop, Record, Rewind, Fast Forward, Pause, Slow, Play

5.Menu, Left, Right, Up, Down, Exit

NOTE：
After you press the record icon, there will be a recording file in the path that you
have set. Each recording file can be saved up to 6000 frames. The recording file
will be assigned to the second file if it has more than 6000 frames. Besides, if
the HDD space is less than 200MB, the program will stop recording.

1.Image transmission rate per second

2.Data transmission rate

3.Power

4.Disconnection

5.Resolution : VGA 、QVGA

6.Image quality : High 、Middle 、Low

7.Image adjusting : Brightness/ Contrast/ Saturation

8.Snapshot : press this button, the image will be automatically
saved in the PC.

9.Record : press this button, the recording file will be saved
in the PC automatically.

10.System setting

11.Number of online users

12.Window adjust (right click for Full Screen)

PLAYBACK OPERATION

Please find a recording file in the PC and click twice on it to playback.

1. On Screen Display

2. Snapshot

3. Stop

4. Pause

5. Slow (1/2, 1/4, 1/8)

6. PLAY

7. Fast

8. OSD show / hide

9. System setting (Path of snapshot,
   text color, progress color, channel
   color)

10. Next (Play next file on the same folder)

11. Duration time / Play speed

12. Playback controlling bar

ADVANCED SETTING

Click "System Config" for advanced setting.

SYSTEM CONFIG

ACCOUNT

Set up the user's account(Max 10 accounts) , password and authority (Max 6 accounts in line at the same time) .

1.**User's level:**

   SUPERVISOR-control all the functions

   USER LEVEL-control advanced functions

   GUEST LEVEL-control basic functions only

2.**Life time** : During the period of time, users are allowed to control the Video Web Server.

Set up the ALARM function. You can use it to operate "alarm trigger recording" function.

1.**Alarm** : Enable or disable Alarm trigger function.
2.**Method** : Two selections—E-mail or FTP.
3.**Resolution** : Image storing resolution for Email or FTP function(SUBVGA is 160 *120 QVGA is 320*240)
4.**Alarm Duration** : Alarm and alarm record duration time.
5.**Alarm record** : Enable or disable "Alarm trigger recording" function.
7.**Alarm refresh** : Clean the alarm message " " which is showed on the screen.

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MAIL

When the alarm is triggered, the video server program will capture the instant picture and e-mail the captured image to the assigned recipients.

1. You can get all the data from the ISP company or by mailing to the server supplier.(POP3/SMTP server)

2. You should set the mail list which you want to send to when the alarm is triggered.

3. If it is not necessary for you to verify password and user's name, please choose Verify as "No".

FTP

When the alarm is triggered, the video server program will capture the instant picture and upload the captured image to the assigned FTP site.

1. You can get all the data from your MIS department.

2. The default uploading port is No.21.

3. You can set the uploading directory by yourself.

RECORD

You can modify the storing path for recording file and snapshot images by yourself.

TOOLBOX

Upgrade the firmware and get the online users' information.

NOTE :Do not reboot the DVR while it is upgrading the firmware.

> 1.**Firmware Version** : The current firmware version. You can click on "Find" button to get the latest firmware from PC and press "Upgrade Firmware" to upgrade it.
>
> 2.**Info refresh** : Refresh the online users' information.

PERIPHERAL

You can see the default peripheral settings in this Windows.

> 1.**Turbo Step**: Set the shift step when you shift the zone which you see during the zoom in function.

CONNECT VIDEO WEB SERVER VIA IE BROWSER

You can also connect Video Web Server via browser. This function is suitable in both WIN 2000 and WIN XP (WIN XP is preferable to WIN 2000)

Step 1：Open IE browser, in Tools/ Internet Options/Security/Custom Level, please select **"Enable"** for all options of ActiveX.
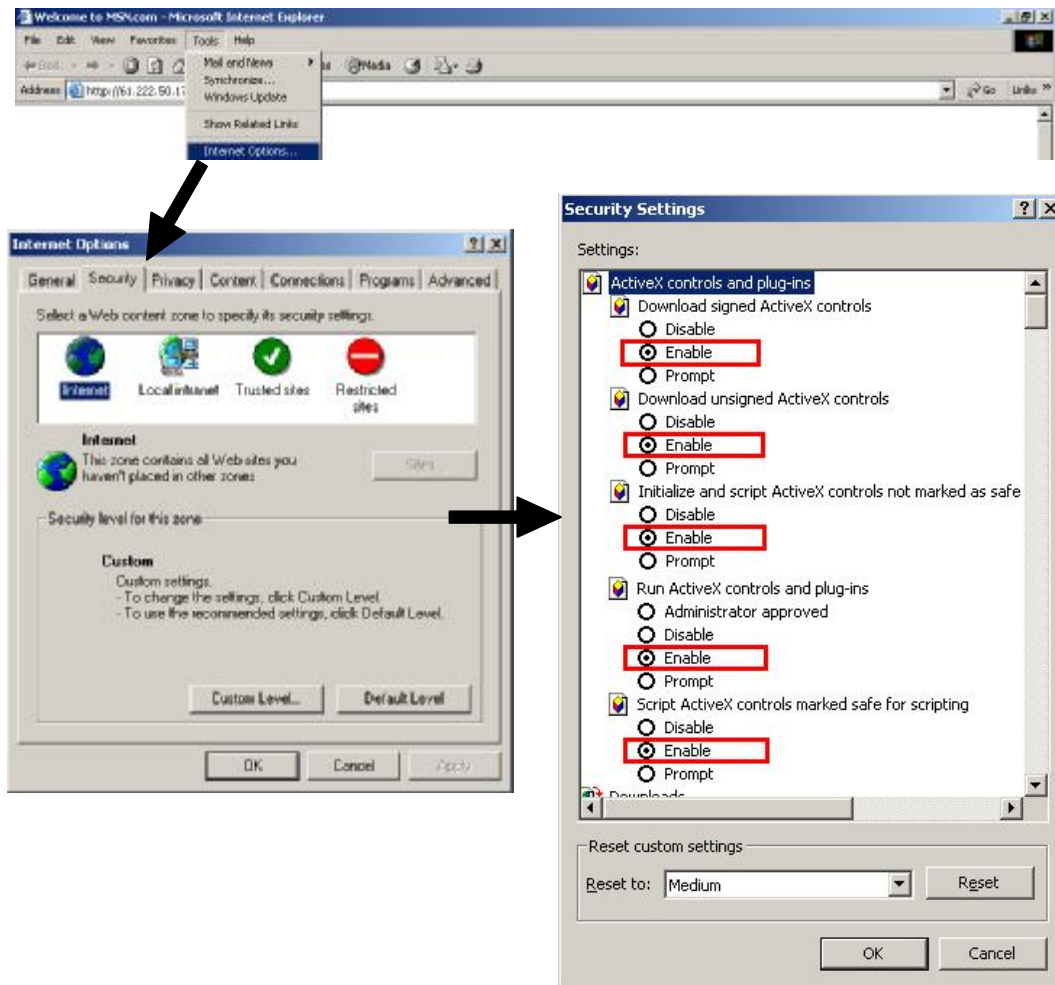
Step 2：Enter IP address that you want to connect.

Step 3：Enter your Username and Password to login Video Web Server.

Step 4：After you login, you will see as below.

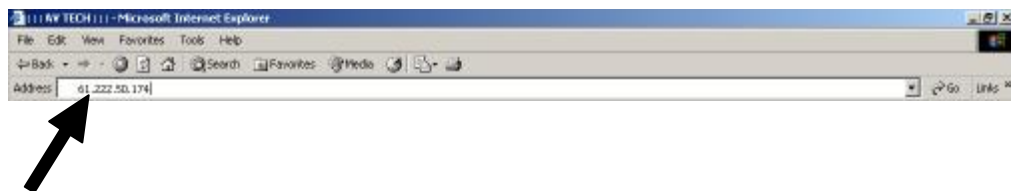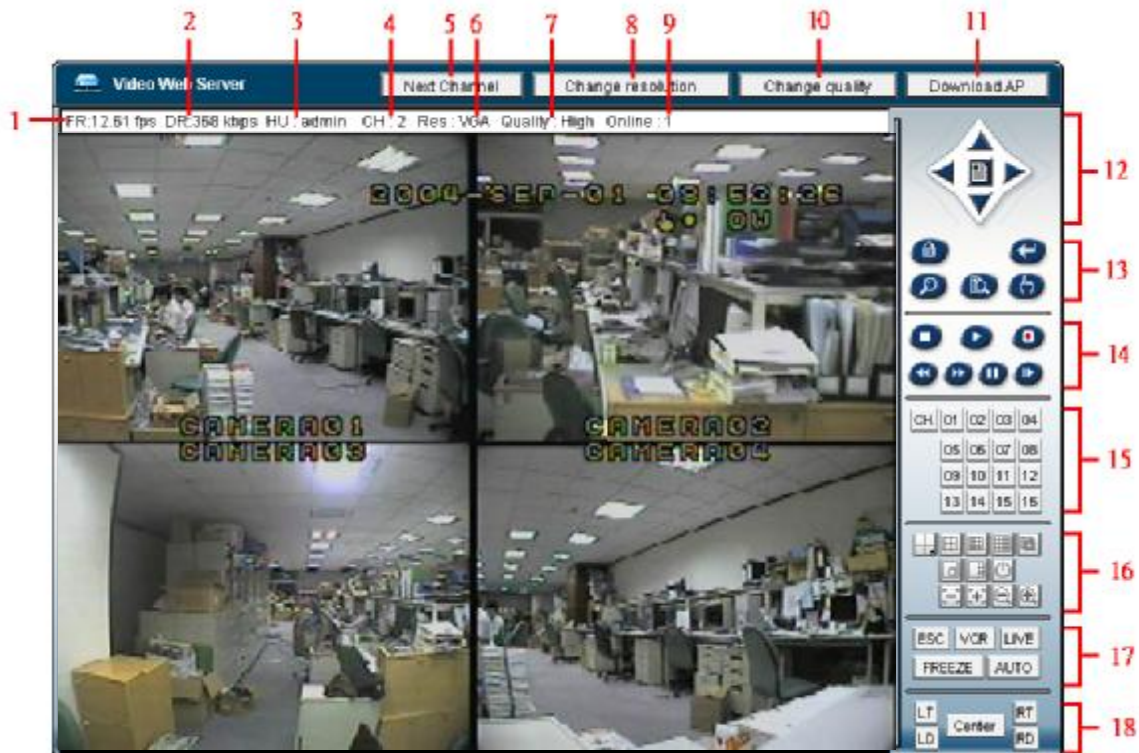|	
1.Image transmission rate per second	10.Quality switching button
2.Data transmission rate	11.Download AP button
3.User name	12.Menu, Left, Right, Up, Down, Exit
4.Video CHs	13.Lock, Zoom, Enter, Search, REC.
5.Channel switching button	14.Stop, Record, Rewind, Fast Forward, Pause, Slow, Play
6. Resolution : VGA、QVGA	15.Camera
7.Image quality : High、Middle、Low	16.4, 9, 16, Multi, PIP, POP, Power, Focus, Zoom
8.Resolution switching button	17.ESC, VCR, LIVE, FREEZE, AUTO
9.Number of online users	18.Position of view

ZOOM

Press ZOOM button to enlarge the display of main picture. It displays zoomed picture on main picture and a small window inserted. The inserted window contains a movable 1/4 view size of the appointed camera. The range is from 2X to 4X.

• Press PIP button : Zoom in

• Press QUAD button: Zoom out

• Press the "Zoom" button again to leave the zoom pointer.

• Press Camera 1-4 button to select channel.

• Press ▲▼◄► button to move the zoom position.

| Original | 2X Zoom | 4X Zoom |

VIDEO LOSS

Screen will display "LOSS" in the center of display picture, if the video input is not connected properly.

SEARCH

1. LAST RECORD
Play the last recorded piece of video.

2. FULL LIST
List all recorded video on the HDD that are sorted by time.

　: Motion Recording
　: Manual Recording
　: Alarm Recording
　: Timer Recording
M : Storage in Master HDD (or S:Storage in Slave HDD)

NOTE: It will display different color on each record list mention above.

3. ALARM LIST
List all recorded video triggered by an Alarm.
NOTE : If there is no Alarm in the record, the screen will display "EMPTY".

4. MOTION LIST
List all motion triggered recordings.

5. TIME SEARCH
Find video recorded on a specific date.

```
┌─────────────────────┐
│  LAST RECORD        │
│  FULL LIST          │
│  ALARM LIST         │
│  MOTION LIST        │
│  TIME SEARCH        │
└─────────────────────┘
```

```
┌───────────────────────────────┐
│ 2003-JAN-01  01:02:03  M       │
│ 2003-JAN-05  05:02:03  M       │
│ 2003-MAR-12  04:02:03  M       │
│ 2003-APR-02  03:02:04  M       │
│ 2003-MAY-01  05:02:03  M       │
│ 2003-AUG-09  01:02:01  M       │
│ ← : PAGE UP   → : PAGE DOWN    │
└───────────────────────────────┘
```

KEY LOCK

For advanced security, users can "Lock" the buttons on your DVR. Key-Lock prevents other people from using the system.

Press **"ENTER"** + **"MENU"** at the same time to enable Key Lock.
Press **"ENTER"** + **"MENU"** at the same time and key in password (Default : 0000),
then press **"ENTER"** to disable Key Lock.

NOTE: To switch to different USER, press **"ENTER"** + **"MENU"** buttons to **"KEY LOCK"** and then enter the
different user's password to UNLOCK.

TROUBLESHOOTING

When malfunction occurs, it may be not serious and can be corrected easily. The table below describes some typical problems and their solutions. Please check them before calling your DVR dealer.

PROBLEM	SOLUTION
No power	▌ Check power cord connections.
	▌ Confirm that there is power at the outlet.
Not working when press any button	▌ Check if it is under Key Lock mode.
	▌ Press "**MENU**" & "**ENTER**" to exit Key Lock mode.
No recorded video	▌ Check if the HDD is installed properly.
Timer Record enable does not working	▌ Check if the Record Enable is set to YES
No live video	▌ Check camera video cable and connections.
	▌ Check monitor video cable and connections.
	▌ Confirm that the camera has power.
	▌ Check the setting of camera lens.
NTSC & PAL System switch	To switch the system, press "**POWER**" + "**FF**" to NTSC system and "**POWER**" + "**REW**" to PAL system. (Refer to Page 7 "GETTING STARTED".)

SPECIFICATIONS

Camera Input Signal	Composite video signal 1 Vp-p 75Ω BNC, 4 channels
Network Interface	Ethernet (10/100 Base-T)
Protocals	TCP/IP, ICMP, SMTP, HTTP, FTP
Main Monitor Output	Composite video signal 1 Vp-p 75Ω BNC
Call Monitor Output	Composite video signal 1 Vp-p 75Ω BNC
Audio input	4 audio inputs, (RCA) *
Audio output	2 audio outputs, (RCA) **
Motion Detect Area	16 * 12 targets per camera
Motion Detect Sensitivity	99 Levels
Video Loss Detection	Yes
Refresh Rate	240 fields/sec. <NTSC> / 200 fields/sec. <PAL>
Recording Rate	Multiplex:Up to 30 fields/sec.< NTSC> / 25 fields/sec.<PAL> Quad-field:Up to 120 fields/sec.<NTSC> / 100 fields/sec.<PAL>*** Quad-frame:Up to 240 fields/sec.<NTSC> / 200 fields/sec.<PAL>****
Dwell Time	Programmable (1~15 Sec)
Picture in Picture	Yes (Movable)
Key Lock	Yes
Picture Zoom	2*2 ~4*4 (Movable)
Camera Title	8 letters
Video Adjustable	Hue/ Color/ Contrast/ Brightness Adjustable
Alarm Input	TTL input, Hi (5V), Low (GND)
Alarm Output	COM./N.O/N.C
Trigger & Action	E-Mail images or images uploading to FTP site's specific account/ Remote Recording
Web Interface	Yes
Time Display Format	YY/MM/DD, DD/MM/YY, MM/DD/YY, OFF
Power Source	DC 19V
Power Consumption	<32W
Operation Temperature	10 ~ 40℃
Dimension (mm)	343(W) x 223(L) x 59(H)

• *Specifications are subject to change without notice.*

* **4 audio inputs, can select only 1 during operation for recording at the same time.**

** wi**th 2 mono audio outputs from the same source.**

***NTSC: 4CH x 30IPS = 120 fields/sec, PAL: 4CH x 25IPS = 100 fields/sec

****NTSC: 4CH x 60IPS = 240 fields/sec,PAL: 4CH x 50IPS= 200 fields/sec

APPENDIX #1 – INSTALL THE HDD

Follow the steps carefully in order to ensure correct installation.

The compartment located on the front panel of the DVR is the removable Cartridge, in which you insert the HDD. The various parts of the Cartridge are labeled for your reference.

Note: Users need to set the HDD on the Master mode for the system detecting.
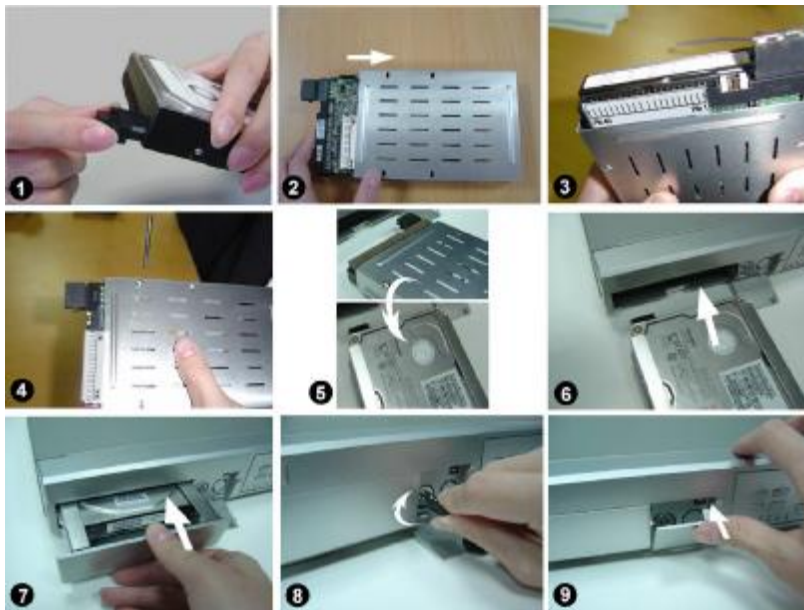
**Step 1** Connect the connector with the HDD (refer to Picture 1).
Step 2 Put HDD into the HDD cartridge. Please notice the bottom side is power side as chart shows (refer to Picture 2).

Step 3 Screw the HDD to the cartridge. Before you screw the HDD, please be aware that you must to level pin 1 of the HDD at pin 1 mark, because the screw hole is different from different HDD brands. Then screw the HDD correctly (refer to Picture 3 and 4). You must precisely align the hard disk to the pin connection to ensure correct installation.

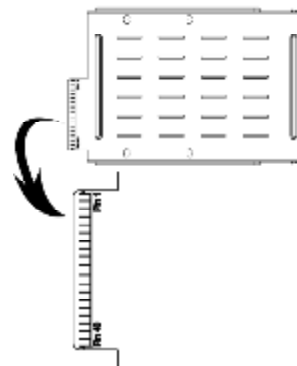**Step 4** Reverse the HDD and put it into DVR (refer to Picture 5 and 6).

Step 5 Connect the HDD with DVR (refer to Picture 7).

Step 6 Lock the cabinet by turning the key clockwise (refer to Picture 8).

A (locked)

B (unlocked)
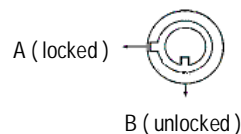
Note : If you do not lock the cabinet, the DVR system will not function properly.
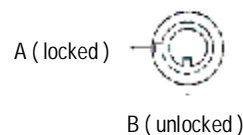
Step 7 Close the cap (refer to Picture 9).

APPENDIX #2 – REPLACE THE HDD

Step 1 Open the cap

Step 2 Unlock the cabinet by turning
the key anti-clockwise

A (locked)

B (unlocked)

Step 3 Pull out the cartridge

Step 4 Loosen all screws on
the Cartridge

Step 5 Remove the HDD from
Cartridge

Note: 1. If you want to change a different HDD, you must remove the connectors from HDD (refer to Page 51).
2. When HDD works for a period of time, the surface temperature will be high, please pay attention to it.
3. After turning the key to unlock position, please wait for several seconds until HDD operation stops
completely.

HDD HOT SWAP FUNCTION

Please follow the steps as following to ensure the reliability.

1)Unlock the cabinet by turning the key anti-clockwise.

2)Key in your password and press enter to disable the hard drive.

3)Pull out the HDD cartridge.

4)Replace the HDD in the tray.

Note: After turning the key to unlocked position, please wait for several seconds till HDD
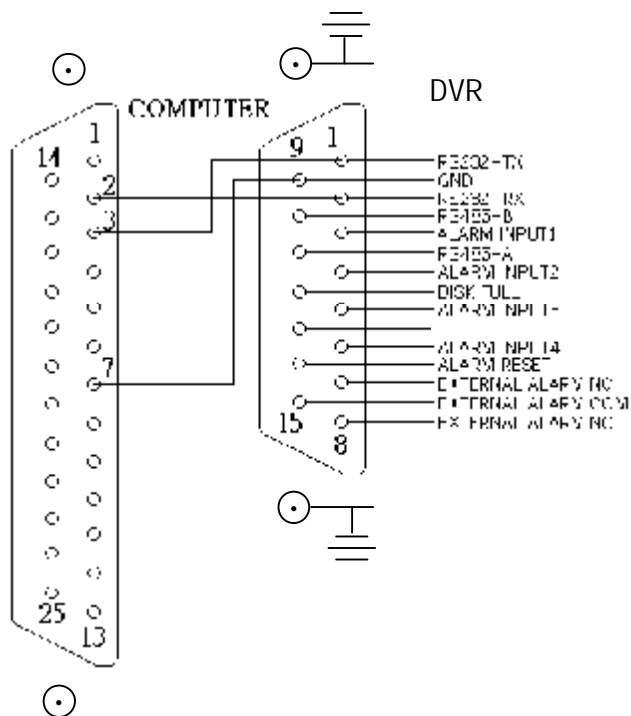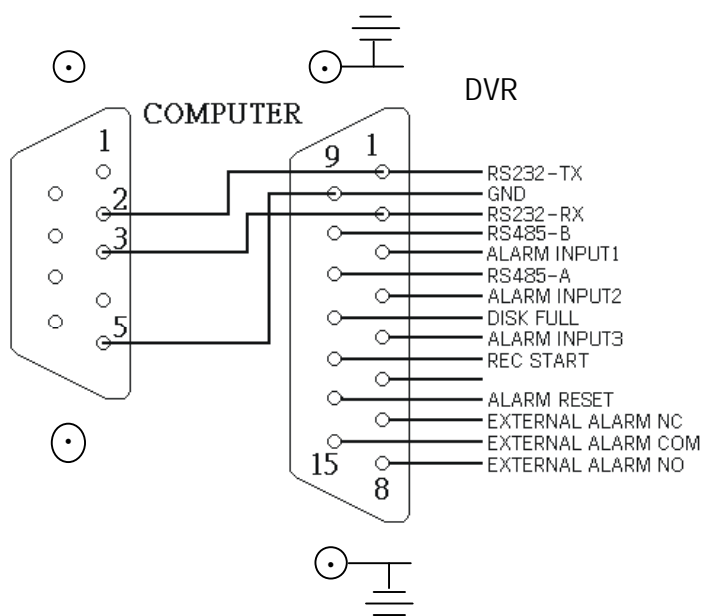operation stops completely.

APPENDIX #3— PIN CONFIGURATIONS

15 pin com port

9 pin com port

PIN 3, 4, 5, 6 ALARM INPUT

To connect wire from ALARM INPUT (PIN 3, 4, 5, 6) to GND (PIN 9) connector, DVR will start recording and buzzer will be on. When alarm has been triggered, signal becomes "Low", and it will stop all alarm activities. Under normal operation, signal remains "High".

PIN 7. EXTERNAL ALARM NC

Under normal operation COM connects with NC and disconnects with NO. But when alarm is triggered, COM disconnect with NC, and connect with NO.

PIN 8. EXTERNAL ALARM NO

Under normal operation, COM will disconnect from NO. But when Alarm is triggered, COM will connect with NO.

PIN 9. GND

GROUND

PIN 12. DISK FULL (OUTPUT)

When the HDD is full, it sends a signal to trigger next DVR recording mode, if you install another DVR. Under normal operation, the signal remains "High", but when the disk is full, DVR will send "Low" signal.

PIN 14. ALARM RESET (INPUT)

To connect wire from ALARM RESET (PIN 14) to GND (PIN 9) connector, it can disable ALARM. An external signal to ALARM RESET (PIN 14) can be used to reset both ALARM OUTPUT signal and DVR's internal buzzer. When alarm has been triggered, signal becomes "Low", and it will stop all alarm activities. Under normal operation, signal remains "High".

PIN 15. EXTERNAL ALARM COM

Under normal operation COM connect with NC and disconnect with NO. But when alarm is triggered, COM disconnects with NC, and connects with NO.

APPENDIX #4 – RECORDING SPEED

The Recording Time is different based on Recording Speed, Recording Quality and Recording Mode. Please refer to the following table. The HDD capability is 250GB.

NTSC SYSTEM

IPS		30	15	8	4	2	1
MULTIPLEX	Best	50hr	100hr	187hr	375hr	750hr	1500hr
	High	62hr	125hr	235hr	468hr	937hr	1875hr
	Normal	100hr	200hr	375hr	750hr	1500hr	2998hr
	Basic	167hr	333hr	625hr	1250hr	2498hr	4996hr
QUAD-FIELD	Best	48hr	95hr	178hr	356hr	712hr	1425hr
	High	59hr	118hr	223hr	445hr	890hr	1781hr
	Normal	95hr	190hr	356hr	712hr	1425hr	2848hr
	Basic	158hr	316hr	594hr	1187hr	2373hr	4746hr
QUAD-FRAME	Best	24hr	48hr	89hr	178hr	356hr	713hr
	High	30hr	59hr	112hr	223hr	445hr	890hr
	Normal	48hr	95hr	178hr	356hr	713hr	1424hr
	Basic	79hr	158hr	297hr	594hr	1187hr	2373hr
HDD Type		250 GB					

PAL SYSTEM

IPS		25	12	6	3	2	1
MULTIPLEX	Best	50hr	104hr	210hr	423hr	633hr	1266hr
	High	62hr	131hr	265hr	527hr	792hr	1583hr
	Normal	102hr	210hr	422hr	844hr	1266hr	2542hr
	Basic	168hr	350hr	704hr	1406hr	2110hr	4218hr
QUAD-FIELD	Best	48hr	98hr	200hr	400hr	600hr	1202hr
	High	58hr	124hr	251hr	500hr	752hr	1503hr
	Normal	98hr	200hr	400hr	800hr	1202hr	2414hr
	Basic	160hr	332hr	668hr	1335hr	2004hr	4005hr
QUAD-FRAME	Best	24hr	50hr	100hr	200hr	300hr	600hr
	High	30hr	62hr	125hr	250hr	376hr	751hr
	Normal	49hr	100hr	200hr	400hr	601hr	1207hr
	Basic	80hr	166hr	334hr	667hr	1002hr	2003hr
HDD Type		250 GB					

Note: The data above is obtained from actual test of recording normal TV programs.
   (For Reference Only)